

ABSTRACT

Conversion of an untreated liquid to a clean harmless treated liquid through microbe removal, characterized in that a mechanical treatment for damaging microbes present in a liquid to thereby effect extinction thereof and sterilization, combined with a chlorination in which a chlorine-containing substance is formed from a liquid and injected into a liquid to thereby effect microbe extinction and sterilization, is applied to a liquid. There is further provided an electrolytic circulation system comprising applying a detoxification treatment for extinction of microbes in seawater and sterilization by means of detoxification facilities on land or on the sea to seawater introduced through a seawater introduction channel and accommodating the seawater having been thus treated in a ballast water tank. As a result, facility and operating costs can be reduced. Extinction of microbes of unlimited size and sterilization can be securely achieved without any strength drop on the side of treated liquid accommodation body. Further, the space for installation of detoxification apparatus for ballast water in ships can be reduced to thereby enable increasing of loading space for cargo, etc. Still further, on existing ships, the hull rework cost for installation of detoxification apparatus can be minimized.